

Let's Talk: Origin of Speech

The emergence of articulated speech was one of the latest acquisitions of our ancestors. Articulated speech changed the form of communication and increased the speed and efficiency of communication (Lieberman, 1984, 1991). The appearance of articulated speech must have affected the structure of the supralaryngeal tract (Lieberman, 1984, 1991, 1992), the basicranium (Laitman, 1983, 1985), the oral cavity (Duchin, 1990) and facial details (Krantz, 1980,1994). At the same time, despite all these important changes, human self-developing cognition, mental cooperation and dialogic language emerged long before the appearance of articulated speech.

Therefore, according to the suggested model, the importance of articulated speech in the history of our species seems a little exaggerated. I share the opinion that "The most basic aspect is the neurological capacity for symbolic thought, the ability to form mental images of things... It is only of secondary importance just how these thoughts are communicated" (Krantz, 1973:26).

Reviewing the vast literature about the origin of human language and speech, one may be puzzled by the diversity of points of view on this problem. All the fossil hominids, including *Homo habilis* and even Australopithecines (Holloway, 1983; Tobias, 1971, 1983; Falk, 1980), up to the *Homo sapiens* in the Upper Paleolithic (Washburn & Lancaster, 1971; Swadesh, 1971; Klein, 1989a), are among the possible candidates for our "first talking" ancestors. The most accepted is the assumption that language and speech appeared in hominid history during the existence of *Homo erectus*.

Even a brief survey of works connected with the problem of the origin of language and speech shows a diversity of methods. Scholars use the fact of the growth of brain size as the main indicator of the emergence of language and speech among the early hominids (see: Falk, 1975; Jerison, 1973), appearance of hemispheric asymmetry and the Broca and Wernicke areas in the brain (Falk, 1975; Holloway & De La Coste-Laneymodie, 1982; Tobias, 1983), comparative anatomy of supralaryngeal tract (Lieberman, 1984, 1991), basicranium (Laitman, 1983, 1985), anatomy of oral cavity (Duchin, 1990), preparation and standardisation of stone tools (Holloway, 1969), and even the development of art (Davidson & Noble, 1989; Noble & Davidson, 1996). Using the same data, other scholars reach different conclusions. Some of them do not consider brain size as important as the inner organization of the brain (Holloway, 1983), some write about the difficulties of identification of the specific Broca and Wernicke areas and their functions on the fossil endocasts, and some write about the presence of these brain areas in the monkeys' brains (Deacon, 1992:117). The methods and results of the reconstruction of the supralaryngeal tract have been challenged (Falk, 1975; Le May, 1975; Arensburg et al. 1989; Frayer, 1992); causal links between the preparation and standardization of stone tools and the

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development of language have also been criticized (Wynn, 1979, 1989; Graves, 1994).

The suggested scenario of the emergence of articulated speech is based on human musical activities. I suppose that a study of some basic elements of human musicality (particularly singing) could give us important insights into the process of the emergence of the later communication medium - speech.

What can vocal polyphony tell us about the origins of speech?

On the 16th of May 1986 I spent most of the day in an exciting multi-hour conversation with physical anthropologist Valeri Alexeev. Despite my over-intensive reading sessions of physical anthropological publications of the last couple of years, I was a total amateur in physical anthropology and the opinion of a professional physical anthropologist was crucial for me. I was unbelievably lucky to be there. Valeri Alexeev was not only a professional physical anthropologist. His wide first-hand knowledge of different materials from different regions of the world, an impressive number of published books, a deep knowledge of several European languages and personal and professional contacts with the leading Western anthropologists made him one of the world's leading scholars in his field. Although he was not yet elected as the Director of the Institute of Archaeology of the Academy of Sciences of the Soviet Union, he was head of the Department of Population Genetics and already unbelievably busy. I very much appreciated his time and his interest in the possible links between music and physical anthropology. [I am spelling his name as "Alexeev", as do Cavalli-Sforza and Alexeev himself, although Milford Wolpoff spells his name as "Alexeyev"].

On that day we were discussing the obvious coincidence of the distribution of vocal polyphony with the data of physical anthropology among the different populations of the world. Valeri Alexeev was excited, as the distribution of vocal polyphony among European and African singing traditions is a further proof of the closer links between the European and African populations. It was during our long conversation, interspersed with minor breaks for food consumption, that a strange idea, that I guess was somewhere inside my brain for some time, found its way out.

"Valeri Pavlovich", I said to him, "I think there is a historical reason why there is such a difference in the distribution of choral polyphony between the populations of East Asia on one hand and Europe and Africa on the other hand. I think the East Asian populations shifted to speech much earlier than the European and African populations."

My words sounded quite silly to myself, I must confess. I have never heard of anyone suggesting that different human populations started talking at different times. Besides, I could instantly feel the controversial political implications of such a declaration. Valeri Alexeev's reaction was quite extraordinary for me. He looked at me, then without saying a word to me got up and for a few minutes walked to and fro

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around the room, sometimes talking to himself. I still remember one of the half-phrases that caught my ear: “This can explain why the Chinese materials are so...” During these few minutes he stopped only once, to prepare his pipe, and continued walking smoking his pipe.

Later that year Valeri Alexeev suggested I should submit an article for the most prestigious anthropological refereed journal in the USSR *Soviet Ethnography*. The article “Folk polyphony, ethno-genesis and race-genesis” was published after the usual long process of peer review and making all the necessary changes in the beginning of 1988. The article contained plenty of parallels between the distribution of vocal polyphony and the distribution of different anthropological types in different parts of the world. The article concluded with the suggestion that different populations shifted to articulated speech at different times. Alexeev liked the manuscript, but when the article was being prepared for publication, he advised me not to include the idea of an earlier shift to articulated speech in East Asia in this article. “The idea is not yet ready for publication” was his comment. I agreed, and that’s how the article was published. But we both forgot about the brief English summary that was published together with the article. The summary was prepared and submitted together with the original text, and it had a few words about the shift to articulated speech among different populations in different epochs. So that’s how it was published – without a word on possible time differences in the origins of articulated speech in different populations in Russian text, and with the idea of a shift to articulated speech in different epochs in different populations in the English summary. I noticed this only when the article was published.

The logic of my suggestion that East Asian and Australian aboriginal populations shifted to articulated speech earlier than European and African populations is not too complicated:

- According to the suggested model, initial forms of polyphonic singing (proto-polyphony) were distributed in **all** ancient populations of *Homo erectus* (or more correctly – archaic *Homo sapiens*). This ancient tradition of polyphony singing, with the new human cognition and the ability to ask questions, was taken along on the long journey to different regions of the world.

- *Homo erectus* had all the necessary cognitive abilities that are present in *Homo sapiens*: dialogical communication, information-sharing based on the new revolutionary ability to ask questions, mental cooperation, self-developing brain. The only feature that differentiated *erectus* from *sapiens* was articulated speech. At the time of the dispersal of humans from Africa language was not based on an articulated medium.

- After the advent of articulated speech musical (pitch) language lost its initial survival value, was marginalized and started disappearing. Articulated speech became the main communication medium in human societies.

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- Early human musical abilities started to decline. The ancient tradition of choral singing started disappearing century by century and millennia by millennia. Musical activity, formerly an important part of social activity, also started to decline and became a field for professional activity.

- As a result of this decline, in some regions of the world the tradition of vocal polyphony is almost completely lost. In others the traditions are full of life and social importance. Even in the recorded sources of the last few centuries it is obvious that the area of distribution of vocal polyphony is gradually shrinking on our planet. Regions without a tradition of polyphonic singing have ancient traditions of musical professionalism. Most of the regions with active polyphonic traditions have no or very little professional musical activity.

- The tradition of choral polyphonic singing has been lost among East Asian and Australian Aboriginal populations. Polyphony is still strongly present in European, Polynesian, Melanesian, and particularly – sub-Saharan African - populations.

- The explanation of this difference is the shift to articulated speech among different populations in different epochs. Regions where vocal polyphony is absent (lost) must have shifted to articulated speech earlier. Regions where the tradition of vocal polyphony is still alive and active must have shifted to articulated speech much later. There is a good theoretical background for the belief that this could be the case, as articulated speech is mostly believed to be the latest big change of human evolution, and if human groups came to different regions of the world without fully developed speech, it would be natural for them to shift to articulation at different times.

- Therefore, I suggest that the ancestors of contemporary populations with monophonic singing traditions (East Asian, most of Native American and Australian Aboriginal) had shifted to articulated speech **earlier** than the ancestors of contemporary populations with polyphonic singing traditions (Europeans, and particularly, sub-Saharan African populations).

The idea of the initial wider distribution of archaic forms of polyphony and their subsequent loss was suggested by the Russian musicologist Miron Kharlap (Kharlap, 1972), though Kharlap did not consider this process in the context of the evolution of articulated speech. According to Kharlap, most of the activities of prehistoric humans was based on a group activity, therefore the group music-making (choral singing and dancing) must have been the earliest model of human musical activity. American primatologist Bruce Richman directly linked the evolution of articulated speech with human choral singing (Richman, 1993). He proposed the idea that articulated speech could emerge from choral singing (Richman, 1993:721-722; see also Staal, 1994). According to this approach human choral singing should be considered as the legacy of a pre-articulated communication epoch. I agree with these

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suggestions and propose that that after the emergence of articulated speech choral singing lost its direct survival value and is in a constant state of decline. Documented evidence of the loss of traditions of part-singing from different regions of our planet supports this scenario.

If we combine this scenario with the fact of the uneven distribution of choral singing on different continents, we will inevitable end up with the conclusion of an asynchronous shift to articulated speech in different human populations. The absence of choral polyphonic singing in the musical cultures of East Asian, American and Australian indigenous populations could be explained by the earlier lost of adaptive value by choral singing among the ancestors of these populations.

Later I found that the idea of the non-synchronous emergence of articulated speech in different ancestral human populations was not new. Gordon Hewes had a special section “Polygenesis versus Monogenesis” in his 1977 review of different theories of language evolution where he discussed this idea as well. Here is most of this section:

“Linguists as divergent in their views as Alfredo Trombetti and Morris Swadesh have inclined toward a single ancestor for all spoken language systems, and some others are disposed to accept such a view (M. L. Foster, in press). Few linguists are prepared to accept the evidence in favor of monogenesis; if language, on the other hand, had multiple origins, they would hardly have been simultaneous, and polygenic origin models therefore present the possibility that some human groups might have existed without language (or at least without spoken language) for a longer time than others. Such theories are hardly in keeping with egalitarian principles. South African click languages are a kind of test case for these conflicting views. Edmund Critchley (1967) suggested that language may have been invented and lost more than once in the long course of human evolution. Monogenism, in accordance with Occam’s Razor, possesses the virtue of elegance. Current interest in language universals need not commit one to either side of this dispute, since the observable similarities could have arisen in a common, ancestral language which could have been generated independently on the basis of pan-human psycholinguistic unity of some sort” (Hewes, 1977:49).

Language and *Homo Sapiens*

According to our model, **language origins are monogenetic, and human language and cognition was already present in *Homo erectus* that left Africa about two million years ago.** In this regard there is no difference in basic cognitive abilities between the *Homo erectus* and *Homo sapiens*. The idea of the equation of *Homo erectus* and *Homo sapiens* is very well known in paleoanthropology. Authors from very different generations suggest that this division of our species into *erectus* and *sapiens* taxons does not reflect our historical reality (Weidenreich, 1943; Jelinek, 1978; Wolpoff, 1999:396-7). Wolpoff divides *Homo sapiens* by criteria of time and geography:

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- “**Early *H. sapiens***: the earliest specimens, from the later Pliocene and early Pleistocene (all of these were traditionally *H. erectus*)
- **Middle Pleistocene *H. sapiens***: the middle Pleistocene specimens, only the earlier of which were traditionally *H. erectus* according to some authors although others would place virtually the entire sample in this taxon
- **Late Pleistocene *H. sapiens***: the late Pleistocene specimens, including Neanderthals *although this term is not synonymous with Neanderthal*
- **Recent *H sapiens***: The post-Pleistocene remains
- **Living *H. sapiens***: living and very recently (for instance historic) deceased humans” (Wolpoff, 1999:397).

As for the shift to articulated speech, as has been suggested by a big group of scholars, it occurred much later, after the dispersal in different groups of Homo sapiens. I suggest that speech occurred in different times in different populations. Among populations where the transition from pitch language to articulated language occurred earlier, the tradition of choral polyphony was lost.

So, the distribution of vocal monophony and polyphony all over the world suggests the following succession in the emergence of articulated speech:

Monophonic populations (earlier shift to articulated speech)

- (1) East Asian (and most of the Native American) populations;
- (2) Australian Aboriginal populations;

Polyphonic populations (later shift to articulated speech)

- (3) European populations;
- (4) Sub-Saharan African populations.

One more important detail that we have to mention is the **clear difference within the European population (according to the distribution of choral polyphonic singing)**. It is obvious from the first part of this book that polyphony is present **only in part** of the European populations. More specifically;

- (1) European (sometimes known as Caucasian, or Caucasoid) populations of the mountain regions of Central and South Europe, some isolated regions of East Europe, and the population of the northern fringes of Europe are among the cultures where the tradition of vocal polyphony is actively present (or was present according to historical sources);
- (2) European (Caucasoid) populations of North Africa, Middle East, Central Asia and North India constitute the group of Caucasians where the tradition of polyphony is not present.

This division of the Caucasoid population is not new, and we will discuss this together with other related topics in the next section, dedicated to the correlation of the suggested model of asynchronous shift to articulated speech in different human populations.

Correlation with the paleoanthropological data

The model of the asynchronous shift to articulated speech in different human populations raises a whole set of questions. In the following few sections we will discuss not only the correlation of paleoanthropological data with this model, but the correlation of the data of speech pathologies (stuttering), reading pathologies (dyslexia), and the acquisition of a phonological system in different human populations. In all these spheres this new model of the asynchronous shift to articulated speech in different human populations makes strong predictions. We will also discuss the moral and political implications of the suggested model.

Articulated speech is considered to be the last major acquisition in human history. Krantz suggested that the appearance of articulated speech affected the morphology of facial features (Krantz, 1980, 1994). So if without the spoken language our ancestors looked a bit different, with the appearance of spoken language their facial features were transformed according to the needs of articulated speech. Therefore, the emergence of morphological continuity of facial features among fossil forms and the contemporary populations of different regions could be considered as evidence for the emergence of articulated speech among the ancestral fossil forms. According to our model morphological continuity must be different in different regions of the world, and the continuity is expected to be deepest in the regions where the shift to articulated speech happened earlier. So, I would expect morphological continuity to be deepest in East Asia, followed by Australia, then Europe, and finally sub-Saharan Africa. Let us now very briefly discuss the paleoanthropological data from different regions from this point of view.

EAST ASIA. According to the suggested model, the earliest shift to articulated speech occurred in East Asia, so the morphological continuity there is expected to be the earliest and strongest. In paleoanthropology East Asia is known to be the **best example of regional continuity** (Wolpoff et al. 1984; Wolpoff, 1989, 1999). Well-known Beijing hominids from the Zhoukoudian cave (time range 700-230 kya [kya means "thousand years ago"]), Hexian cranium (250 kya) and Yunxian cranium (350 kya), are of particular interest. According to D. Etlar, one of the latter specimens "...combines a surprising mix of features. The forehead and brow ridges recall archaic Homo sapiens and the areas around the nose and cheeks seem to suggest modern humans, especially those from China" (quoted in: Jurmain & Nelson, 1994:422). These progressive features and morphological continuity suggest that the carrier of those features was capable of articulated speech, similar to the Beijing specimen of the final stage of the Zhoukoudian cave (300-230 kya). According to the reconstructions of P. Lieberman (1984, 1991) and J. Laitman (1983, 1985) the time range - 350-230 kya - seems probable for the emergence of the first forms of articulated speech in East Asia.

AUSTRALIA. Arguably the second best case of regional continuity is Australia. It is accepted by most scholars that the Australian Aboriginal population is

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connected with the Ngandong (Solo) specimen from Java (Macintosh & Larnach, 1976; Wolpoff, 1999:735). Morphological continuity from Java to Australia is generally widely accepted. This continuity correlates with our suggestion of the very early shift to articulated speech of the ancestors of Native Australians. Ngandong dates back to approximately 200 kya (Habgood, 1991).

EUROPE. Unlike monophonic Eas Asians and Australians, and polyphonic sub-Saharan Africans, Europeans (Caucasoids) are the only major population which has **both** monophonic and polyphonic singing traditions. (1) North African and south-west Asian Caucasoid populations are the carriers of monophonic singing traditions, while (2) the mountainous and north-west European Caucasoid populations are the carriers of polyphonic singing traditions. A major part of Central, South, and East European folk musical traditions represents the synthesis of monophonic and polyphonic traditions. Proceeding from this fact we suggest that a shift to articulated speech did not occur simultaneously in all Caucasoid populations. The fact of the absence of choral singing traditions among the ancestors of the first group (contemporary North African and West Asian Caucasoids) must have shifted to articulated speech earlier than the ancestors of the carriers of polyphonic singing traditions (populations of the mountains and North Europe).

Wide genetic differences between the different Caucasoid populations are quite well known. According to genetic data, “all known genetic polymorphism have been detected in Europeans” (Cavalli-Sforza, 1994:155). If we look at the paleoanthropological data, the existence of the two different types of Neanderthals – Middle Eastern progressive Neanderthal and Central European classic Neanderthal - supports this suggestion (Vandermeersch, 1989). The Middle Eastern Neanderthal has been even suggested (although controversially) as the earliest anatomically modern form of Homo sapiens (survey see in Alexeev, 1985).

The European classic Neanderthal represents another, much more complicated, case. Isolated from the rest of the world in Western Europe behind extensive glaciers for about 100 000 years, they maintained archaic morphological traits for a much longer time - until 40-32 kya. Discussions on the classic Neanderthal's capacity for articulated speech is one of the best-known issues of paleoanthropology. The big brains and cultural achievements of the classic Neanderthals have persuaded some scholars to claim that they were capable of articulated speech (Holloway, 1983; Le May, 1975; Falk, 1975; Duchin, 1990; Arensburg et al. 1989; Hayden, 1993). On the other hand, some specialists who have analyzed the anatomical possibilities of articulation argue that the classic Neanderthals were still partly constrained in their speech (Lieberman & Crelin, 1971; Lieberman, 1984, 1991; Laitman, 1985). Lieberman suggested that a lack of full-range articulation was the reason for their removal in Europe by the anatomically modern Homo sapiens populations (Lieberman, 1992). The idea of the extinction of the classic Neanderthal is prevalent among paleoanthropologists (see Zubrov, 1989). On the other hand, another group of scholars suggests that classic Neanderthals did not become extinct but were (at least partially) transformed into the upper Paleolithic population of Europe (Hrdlicka, 1927; Weidenreich, 1943; Brace, 1964,1991,1995;

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Alexeev, 1974; Wolpoff, 1989, 1999; Frayer, 1992; Karavanic, 1995). According to these works, populations in the northwest fringe of Europe and some mountain regions (e.g. the Balkan or Caucasian mountains) show morphological links with the European classic Neanderthal (survey in: Brace, 1991).

If we bring the data of vocal polyphony among contemporary peoples into the discussion of the fate of the classic Neanderthals, we will notice that the supposed regions of distribution of descendants of the classic Neanderthal coincides with the regions of contemporary distribution of choral polyphonic singing in Europe. Thus, according to our model:

- Spoken language could have emerged among Middle Eastern progressive Neanderthals quite early (possibly about 120-95 kya, according to the paleoanthropological materials);

- According to the musical data, contemporary Afro-Asian Caucasoid populations, carriers of monophonic singing traditions, might be connected to the more morphologically progressive Middle Eastern Neanderthals;

- The classic Neanderthal had human cognitive and linguistic capacities, although they did not possess the full range of articulated sounds, as the musical (pitch) element was still a component of major importance in their language. Their shift to articulated speech (possibly in conjunction with their partial replacement) was not completed until 40-32 kya; and

- According to the musical data, contemporary North-West European and central European mountain Caucasoid populations, carriers of polyphonic singing traditions, might be (at least partly) connected to the European Classic Neanderthals.

SUB-SAHARAN AFRICA. The widest distribution of the tradition of choral polyphony in sub-Saharan Africa strongly suggests that the shift to articulated speech must have occurred among the ancestors of sub-Saharan Africans the latest, possibly even later than among “Classic Neanderthals”. This suggestion also finds paleoanthropological support. Despite the fact that Africa provides the richest paleoanthropological material for the human origins, the regional continuity of the local Negroid type in sub-Saharan Africa is not as clear as that of Europe, let alone China or Australia (see Wolpoff, 1999; Krantz, 1994:148). According to the review of Wolpoff, only West Africa is left to be considered “as a place for Negro origins. There, however, the only solid supporting evidence is the 11 kyr Iwo Eleru skullcap from Nigeria and the 6.4 kyr skeleton from Asselar [respectively 11 000 and 6 400 years old remains], then the border of the Sahara in eastern Mali. It is little wonder that Negro origin, or for that matter any other recent substantive evolutionary problem on the continent, could be regarded as a mystery” (Wolpoff, 1999:748). Valeri Alexeev, summarizing the available evidence of the formation of the features of the sub-Saharan African population, wrote that paleoanthropological data does not go much further than the Mesolithic period (Alexeev, 1974:149).

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Summarizing the correlation between the paleoanthropological materials on regional continuity in different regions of the world and our suggestion of the asynchronous shift to the articulated speech, we can say that paleoanthropological materials do not contradict our model.

Choral polyphony and the theories of human origins.

I have not mentioned so far the two dominating conflicting theories of the human origins: (1) the recent African origin model, and (2) the multiregional evolution model.

(1) According to the “recent African model” contemporary human populations are not connected to the archaic local forms found in different regions of the world. Instead, this model suggests that our direct ancestors evolved about 100 000-200 000 years ago in Africa. From Africa they spread all over the world, replacing all the archaic pre-human populations. Despite a strong molecular argument for the “recent African origins” theory (Cann et al. 1987; Vigilant et al. 1991; Stoneking, 1993, 1993a) some scholars are still skeptical about the presence of modern behavior among the anatomically modern humans of South Africa (Wynn, 1993:592; Klein, 1989:543). Methods of molecular analyses of the proponents of the “recent African theory” were also criticized (Templeton, 1993, 1994).

(2) According to the “multiregional evolution model” most contemporary human populations are connected to the local populations of archaic *Homo sapiens*. According to the proponents of the “multiregional model” the common ancestor of all humans came out of Africa about two million years ago, and after reaching several regions of the world (East Asia, South-East Asia, West Asia, Australia, Europe) they continued evolution in different ecological conditions.

Currently available data on choral polyphony in different human societies strongly support the “multiregional model”. That’s why all our above-mentioned discussions were based on the publications of the proponents of the “multiregional model”, and particularly the works of Milford Wolpoff.

Here I must note that the “recent African model” also leaves room for our model, because at least some of the supporters of this model claim that spoken language was not taken along by the first anatomically modern humans that left Africa about 100 kya. For example, D. Klark, favoring a late Middle Pleistocene African origin for modern humans, still supports the idea of the late (50-40 kya) development of syntactic language (see Stringer, 1992:602). But it is obvious that the “multiregional model” has many more points of contact with the data of contemporary distribution of human vocal polyphony.

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Tone languages and the asynchronous model of speech origin

We have already discussed the importance of tone languages in the evolution of human languages as the descendant of the primordial pitch language. In this section I am going to discuss tone languages from the standpoint of the suggested non-synchronous model of the origin of articulated speech.

Tone languages are mostly distributed in East Asia and sub-Saharan Africa. I hope readers remember that according to our model, these two regions are the two chronological poles of the transformation of primordial pitch language into articulated speech: East Asia - the earliest, and sub-Saharan Africa - the latest. This “polarity” provides a good chance that the tone languages of these two regions might have interesting peculiarities. As a consequence of the much longer use of pitch language as a system of communication, development of African tone languages are supposed to contain the primordial pitch system for a much longer period than East Asian tone languages. As a result, the longer use of the pitch system in the evolution of language in Africa must have generated more tonal functions in African tone languages than in East Asia where the earlier shift to articulated communication must have resulted in a more limited functional use of tones. The new language categories and functions must have been realized in East Asia by means of articulation (Jordania, 1994a).

The following is a brief outline of the tone languages of East Asia and Africa from the non-synchronous model standpoint.

One of the well-known distinctions between the tone languages of East Asia and sub-Saharan Africa is that in East Asia the tone element is mostly limited by its lexical function, while in the sub-Saharan African languages tones have, apart from lexical functions, grammatical functions as well (Pike, 1948:5; Cruttenden, 1986:9; Crystal, 1987:172). "In Africa, there are over 2000 languages that use tone for marking grammatical relations usually achieved by word order or morphology in other languages, such as tense, aspect, relativization, and, in languages such as Maasai, agent-patient relations" (Maratsos, 1989:114).

Another characteristic difference between the tone languages of East Asia and sub-Saharan Africa is the type of tones. From this point we enter the world of musicology. According to the unanimous opinion of music theorists and historians, the succession of fixed pitches was evolutionary preceded by non-fixed or gliding pitches (See Alexeev, E., 1976). Consequently, gliding tones are supposed to be designated as an earlier stage in the development of musical thinking, followed by the system of fixed tones. According to this it is reasonable to propose that the East Asian tone languages must have a wider use of gliding tones than the African tone languages as the earlier shift to the articulated speech in East Asia could have resulted in the preservation of an earlier type of pitch communication (based on gliding pitches) in East Asian tone languages.

Here we again find an interesting coincidence. The East Asian and sub-Saharan African tone languages are markedly distinguished by the types of tones used in their languages: East Asian tone languages employ mostly gliding tones (in

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linguistics they are labeled "contour" tones), while sub-Saharan African tone languages use mostly fixed (or "registered") tones (Pike, 1948:5-8; Crystal, 1987:172).

We can draw a conclusion for this small section: the differences between the East Asian and sub-Saharan African tone languages contain two important ingredients:

- (1) The distribution of lexical tones only in East Asian tone languages, and lexical and grammatical tones in those of sub-Saharan African, pointing to the possibility of the longer use of a pitch-based medium in sub-Saharan Africa; and
- (2) The distribution of evolutionarily earlier gliding (contour) tones in East Asian tone languages, and later fixed (registered) tones in those of sub-Saharan Africa.

These facts also circumstantially support the idea of a non-synchronous shift to articulated speech among the ancestors of East Asian and sub-Saharan African populations.